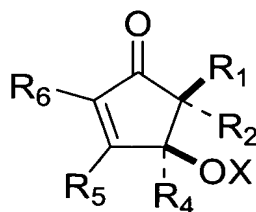


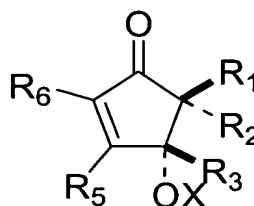
EXHIBIT A

CLAIMS PENDING IN UNITED STATES PATENT APPLICATION SUBMITTED HEREWITH, FILED  
SEPTEMBER 21, 2001, UPON ENTRY OF THE AMENDMENT FILED HEREWITH

37. (new) A method for treating or preventing a disorder in a host, comprising administering to a host in need thereof a therapeutically or prophylactically effective amount of a compound of the formula (a) or (b):

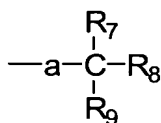


(a)

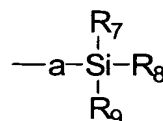


(b)

wherein:  $R_1$  and  $R_2$  are, independently, hydrogen, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted alkynyl, substituted or unsubstituted aminoalkyl, substituted or unsubstituted alkylthio, substituted or unsubstituted alkylsulfinyl, substituted or unsubstituted alkylsulfonyl, substituted or unsubstituted carbocyclic aryl, substituted or unsubstituted aralkyl, or substituted or unsubstituted heteroaromatic or heteroalicyclic;  
 $R_3$  and  $R_4$  are hydrogen;  
 $R_5$  and  $R_6$  are, independently, hydrogen or halogen; and  
 $X$  has the formula

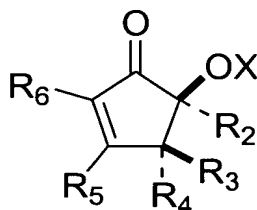


or

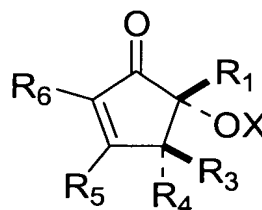


wherein:  $R_7$ ,  $R_8$ , and  $R_9$  are, independently, hydrogen, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted alkynyl, substituted or unsubstituted alkoxy, substituted or unsubstituted aminoalkyl, substituted or unsubstituted alkylthio, substituted or unsubstituted alkylsulfinyl, substituted or unsubstituted alkylsulfonyl, substituted or unsubstituted carbocyclic aryl, substituted or unsubstituted aralkyl, or substituted or unsubstituted heteroaromatic or heteroalicyclic, and  $a$  is absent or a linking group, optionally a hydrocarbyl linking group.

38. (new) A method for treating or preventing a disorder in a host, comprising administering to a host in need thereof a therapeutically or prophylactically effective amount of a compound with the formula (a) or (b):



(a)



(b)

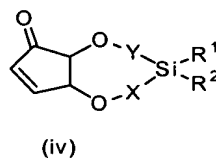
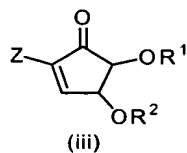
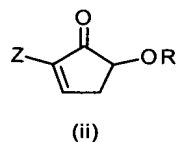
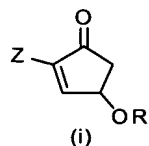
wherein:  $R_1$  and  $R_2$  are hydrogen;  
 $R_3$  and  $R_4$  are, independently, hydrogen, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted alkynyl, substituted or unsubstituted aminoalkyl, substituted or unsubstituted alkylthio, substituted or unsubstituted alkylsulfinyl, substituted or unsubstituted alkylsulfonyl, substituted or unsubstituted carbocyclic aryl, substituted or unsubstituted aralkyl, or substituted or unsubstituted heteroaromatic or heteroalicyclic;  
 and

R<sub>5</sub> and R<sub>6</sub> are, independently, hydrogen or halogen; and  
X has the formula



wherein: R<sub>7</sub>, R<sub>8</sub>, and R<sub>9</sub> are, independently, hydrogen, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted alkynyl, substituted or unsubstituted alkoxy, substituted or unsubstituted aminoalkyl, substituted or unsubstituted alkylthio, substituted or unsubstituted alkylsufinyl, substituted or unsubstituted alkylsulfonyl, substituted or unsubstituted carbocyclic aryl, substituted or unsubstituted aralkyl, or substituted or unsubstituted heteroaromatic or heteroalicyclic, and a is absent or a linking group, optionally a hydrocarbyl linking group.

39. (new) A method for treating or preventing a disorder in a host, comprising administering to a host in need thereof a therapeutically or prophylactically effective amount of a compound of the formula (i), (ii), (iii), or (iv):



wherein Z is hydrogen or a halogen, R is an optionally substituted hydrocarbyl group including up to 8 carbon atoms, or a moiety incorporating at least one heteroatom and up to 50 carbon atoms, at least one of R<sup>1</sup> and R<sup>2</sup> in formula

(iii) incorporates one or more heteroatoms and up to 30 or 50 carbon atoms, at least one of R<sup>1</sup> and R<sup>2</sup> in formula (iv) is an optionally substituted hydrocarbyl group and X and Y are absent or are linking groups.

40. (new) A method for treating or preventing a disorder in a host, comprising administering to said host in need thereof a therapeutically or prophylactically effective amount of an enantiomer of 4-tert-butyldimethylsilyloxy-cyclopent-2-en-1-one.

41. (new) The method of claim 40, wherein said enantiomer is R-(+)-4-tert-butyldimethylsilyloxy-cyclopent-2-en-1-one substantially free of the S-(-) enantiomer.

42. (new) The method of claim 40, wherein said enantiomer is S-(-)-4-tert-butyldimethylsilyloxy-cyclopent-2-en-1-one substantially free of the R-(+) enantiomer.

43. (new) The method of claim 41 or 42, wherein substantially free is at least 75%(w/w), at least 90%(w/w) or at least 99%(w/w) of the desired isomer based upon the total weight of 4-tert-butyldimethylsilyloxy-cyclopent-2-en-1-one.

44. (new) The method of claim 38, wherein R<sub>3</sub> and/or R<sub>4</sub> comprise no more than 7 carbon atoms.

45. (new) The method of claim 38, wherein a hydrocarbyl side chain is not present at positions R<sub>3</sub> and/or R<sub>4</sub>.

46. (new) The method of claim 37 or 38, wherein X is an Si-containing group.

47. (new) The method of claim 37 or 38, wherein R<sub>7</sub>, R<sub>8</sub> and R<sub>9</sub>, are substituted alkyl, aryl or substituted aryl groups.

48. (new) The method of claim 37 or 38, wherein X comprises at least 4 carbon atoms.

49. (new) The method of claim 45, wherein  $R_3$  and/or  $R_4$  is hydrogen.
50. (new) The method of claim 37 or 38, wherein the compound is an R-enantiomer.
51. (new) The method of claim 37 or 38, wherein the compound is an S-enantiomer.
52. (new) The method as in any one of claims 37-40, wherein said compound has a higher activity than cyclopent-2-en-1-one with respect to at least one of the following:
- a) activating HSF;
  - b) inhibiting NF- $\kappa$ B;
  - c) inhibiting the replication of HSV-1; or
  - d) inhibiting the replication of Sendai virus.
53. (new) The method as in any one of claims 37-40, wherein said host is a mammal.
54. (new) The method of claim 53, wherein said mammal is a human.
55. (new) The method as in any one of claims 37-40, wherein said host is an aquatic organism.
56. (new) The method as in any one of claims 37-40, wherein said disorder is a disorder associated with NF- $\kappa$ B activation.
57. (new) The method as in any one of claims 37-40, wherein said disorder is a viral-mediated disorder.
58. (new) The method of claim 55, wherein said disorder is a viral-mediated disorder.

59. (new) The method as in any one of claims 37-40, wherein said disorder is a bacterial-mediated disorder.

60. (new) The method as in any one of claims 37-40, wherein said disorder is a disorder resulting from radiation.

61. (new) The method as in any one of claims 37-40, wherein said disorder is an inflammatory disorder.

62. (new) The method as in any one of claims 37-40, wherein said disorder is a disorder of the immune system.

63. (new) The method as in any one of claims 37-40, wherein said disorder is ischemia.

64. (new) The method as in any one of claims 37-40, wherein said disorder is arteriosclerosis.

65. (new) The method as in any one of claims 37-40, wherein said disorder is a disorder involving cell proliferation.

66. (new) The method of claims 65, wherein said disorder is cancer.

67. (new) The method as in any one of claims 37-40, wherein said disorder involving damage to or killing of cells.

68. (new) The method as in any one of claims 37-40, wherein said disorder is diabetes.

69. (new) The method as in any one of claims 37-40, wherein said disorder is a disorder involving calcium loss or deficiency.

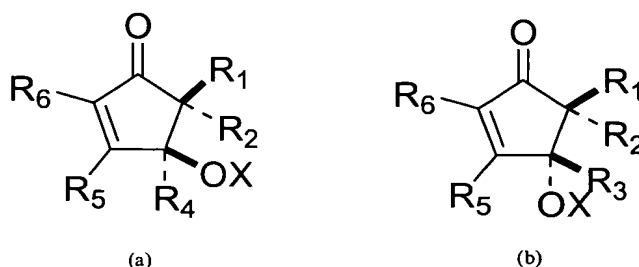
70. (new) The method as in any one of claims 37-40, wherein the compound is administered orally, transdermally, topically, rectally, nasally, vaginally, or parenterally.

71. (new) The method as in any one of claims 37-40, wherein the amount is effective to inhibit NF- $\kappa$ B activation and to activate HSF.

72. (new) The method as in any one of claims 37-40, wherein the effective amount is about 10 $\mu$ g/kg to about 100mg/kg.

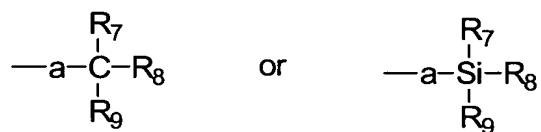
73. (new) The method as in any one of claims 37-40, wherein the effective amount is about 5mg/kg to about 100mg/kg.

74. (new) A method for treating or preventing a disorder in a plant, comprising administering to a plant in need thereof a therapeutically or prophylactically effective amount of a compound of the formula (a) or (b):



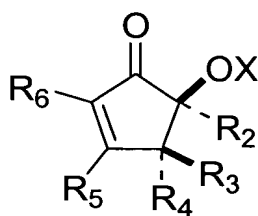
wherein:  $R_1$  and  $R_2$  are, independently, hydrogen, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted alkynyl, substituted or unsubstituted aminoalkyl, substituted or unsubstituted alkylthio, substituted or unsubstituted alkylsufinyl, substituted or unsubstituted alkylsulfonyl, substituted or unsubstituted carbocyclic aryl, substituted or unsubstituted aralkyl, or substituted or unsubstituted heteroaromatic or heteroalicyclic;  
 $R_3$  and  $R_4$  are hydrogen;

R<sub>5</sub> and R<sub>6</sub> are, independently, hydrogen or halogen; and  
X has the formula

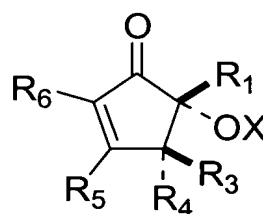


wherein: R<sub>7</sub>, R<sub>8</sub>, and R<sub>9</sub> are, independently, hydrogen, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted alkynyl, substituted or unsubstituted alkoxy, substituted or unsubstituted aminoalkyl, substituted or unsubstituted alkylthio, substituted or unsubstituted alkylsulfinyl, substituted or unsubstituted alkylsulfonyl, substituted or unsubstituted carbocyclic aryl, substituted or unsubstituted aralkyl, or substituted or unsubstituted heteroaromatic or heteroalicyclic, and a is absent or a linking group, optionally a hydrocarbyl linking group.

75. (new) A method for treating or preventing a disorder in a plant, comprising administering to said plant in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of the formula (a) or (b):



(a)



(b)

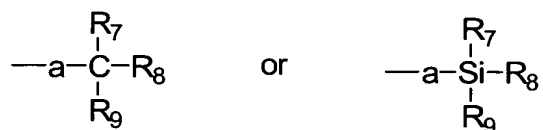
wherein: R<sub>1</sub> and R<sub>2</sub> are hydrogen;  
R<sub>3</sub> and R<sub>4</sub> are, independently, hydrogen, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted alkynyl, substituted or



unsubstituted aminoalkyl, substituted or unsubstituted alkylthio, substituted or unsubstituted alkylsulfinyl, substituted or unsubstituted alkylsulfonyl, substituted or unsubstituted carbocyclic aryl, substituted or unsubstituted aralkyl, or substituted or unsubstituted heteroaromatic or heteroalicyclic; and

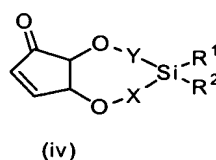
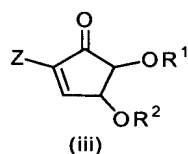
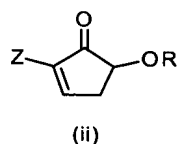
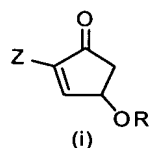
R<sub>5</sub> and R<sub>6</sub> are, independently, hydrogen or halogen; and

X has the formula



wherein: R<sub>7</sub>, R<sub>8</sub>, and R<sub>9</sub> are, independently, hydrogen, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted alkynyl, substituted or unsubstituted alkoxy, substituted or unsubstituted aminoalkyl, substituted or unsubstituted alkylthio, substituted or unsubstituted alkylsulfinyl, substituted or unsubstituted alkylsulfonyl, substituted or unsubstituted carbocyclic aryl, substituted or unsubstituted aralkyl, or substituted or unsubstituted heteroaromatic or heteroalicyclic, and a is absent or a linking group, optionally a hydrocarbyl linking group;

76. (new) A method for treating or preventing a disorder in a plant, comprising administering to said plant in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of formula (i), (ii), (iii) or (iv):



wherein Z is hydrogen or a halogen, R is an optionally substituted hydrocarbyl group including up to 8 carbon atoms, or a moiety incorporating at least one heteroatom and up to 50 carbon atoms, at least one of R<sup>1</sup> and R<sup>2</sup> in formula (iii) incorporates one or more heteroatoms and up to 30 or 50 carbon atoms, at least one of R<sup>1</sup> and R<sup>2</sup> in formula (iv) is an optionally substituted hydrocarbyl group and X and Y are absent or are linking groups.

77. (new) A method for treating or preventing a disorder in a plant, comprising administering to said plant in need of such treatment or prevention a therapeutically or prophylactically effective amount of R-(+)-4-tert-butyldimethylsilyloxy-cyclopent-2-en-1-one substantially free of the S-(-) enantiomer or S-(-)-4-tert-butyldimethylsilyloxy-cyclopent-2-en-1-one substantially free of the R-(+) enantiomer.

78. (new) The method as in any one of claims 74-77, wherein said disorder is a viral disorder.